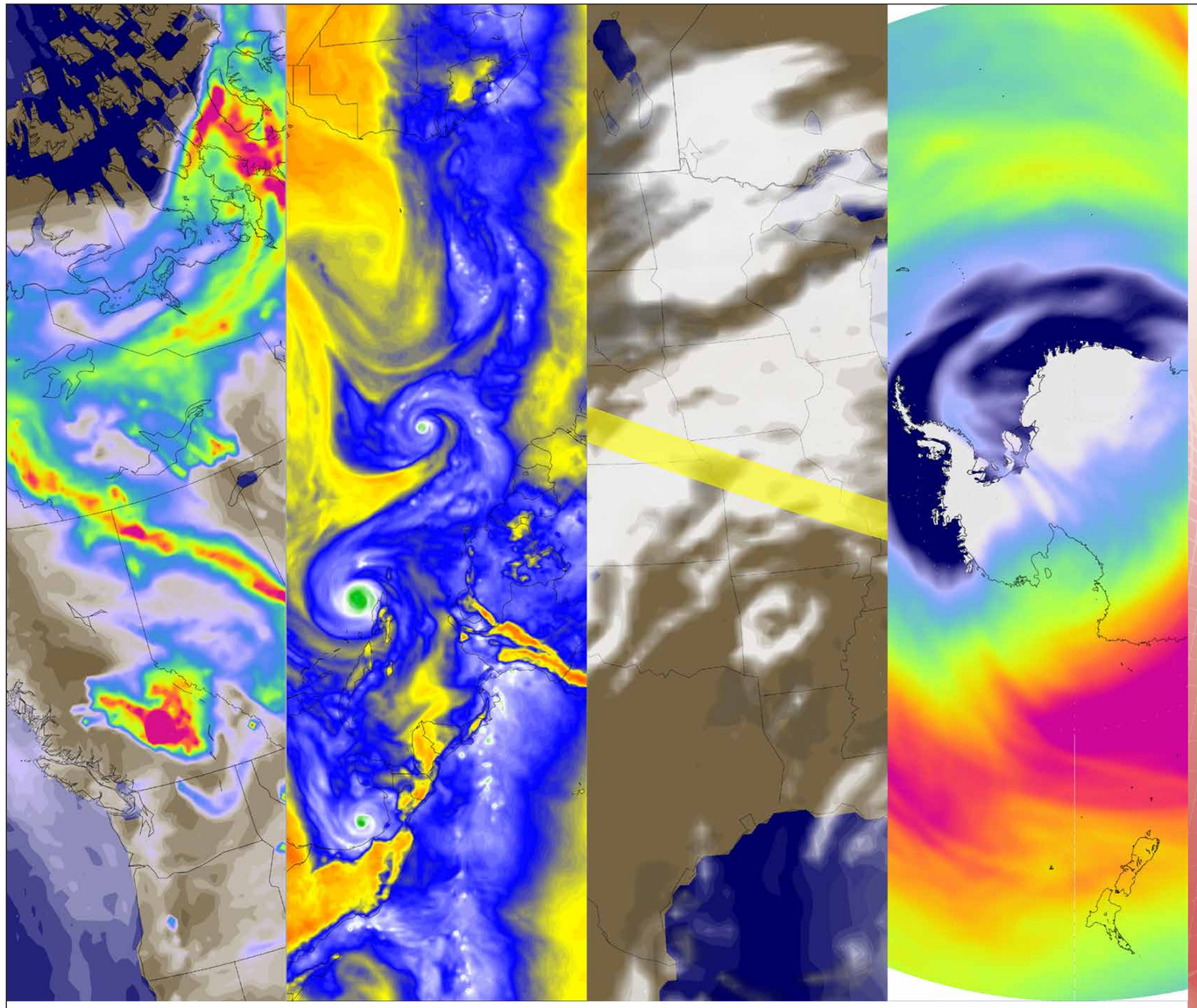


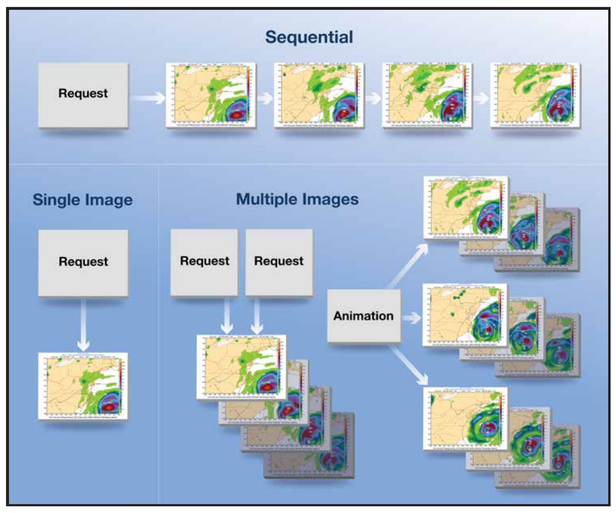
National Aeronautics and
Space Administration

GMAO GEOS Data in Motion

The purpose of the Global Modeling and Assimilation Office (GMAO) Framework for Live User-Invoked Data (FLUID) is to provide applications for interactive analysis and visualizations of experimental climatological data in support of the GMAO mission. Adopting more modern approaches to user-invoked data, or providing data “as-needed,” implies the need for more efficient and intuitive access to data and scalability. With diverse and voluminous GMAO Goddard Earth Observing System (GEOS) data on NASA Center for Climate Simulation (NCCS) systems, the software, hardware, and even user access now require adaptations to fulfill requests from many research areas and devices for both internal and public consumption.

Edmond Smith, NASA Goddard Space Flight Center
Joseph Ardizzone, NASA Goddard Space Flight Center

Global Modeling and Assimilation Office (GMAO) FLUID-built applications provide visualizations and analysis utilities for a wide array of climatological research areas and data products. From left to right: total aerosol optical thickness weather map used for the ABoVE field campaign; recent experimental water vapor forecast product for the mid-Atlantic hurricanes Irma, Jose, and Katia; total cloud fraction forecast for the 2017 solar eclipse across North America; MERRA-2 Antarctic total column ozone prior to the 2002 ozone hole.
Edmond Smith, Joseph Ardizzone, NASA/Goddard



By using high-performance computing and modern software technology, GMAO FLUID can aggregate image generation to deliver visualization products as requested by the user. This image shows a schematic example of parallelizing imagery generation across many processors for a forecast of Hurricane Jose.
Edmond Smith, Sterling Spangler, NASA/Goddard